APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/030,258	02/25/1998	RICHARD KENNETH SCHULTZ	12217-100	7125

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EXAMINER
LAO, SUE X

ART UNIT	PAPER NUMBER
2126	

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	Applicant(s)	
Office Action Summary	09/030,258	Schultz, et al	
	Examiner S. Lao	Art Unit 2126	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___3___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Oct 10, 2002* .

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-46 and 60-63* is/are pending in the application.

    4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-46 and 60-63* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some* c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    *See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____

DETAILED ACTION

1.   Claims 1-46 and 60-63 are pending. This action is in response to the amendment filed 10/10/2002. Applicant has amended claims 1, 33, 34, 60 and 63.

2.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to adequately teach the claimed limitations "instantiated script" and "real-time consideration" as recited in claims 1, 33, 34, 60 and 63.

In the application as filed, there does not appear to be any detailed descriptions or disclosure of instantiated script and real-time consideration.

Claims 1-46 and 60-63 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants recite "instantiated script", "real-time consideration" in claims 1, 33, 34, 60 and 63. There does not appear to be a written description of the claimed limitations in the application as filed, for the reasons set forth in the objection to the specification.

4.   Claims 1-46 and 60-61, 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillman et al (5,506,999) and Fischer (U. S. Pat. 5,337,360).

As to claim 1, Skillman teaches a plurality of processing units each executing a portion of an overall application and a centralized event-driven control to integrate the distributed processing. In particular, Skillman teaches [col. 4, line 37 - col. 9, line 29] data processing system (blackboard parallel processing system), comprising:

a plurality of event modules (knowledge source processors KSPs) each including code (knowledge source / event driven application) that generates an event data signal (trigger signal) representative of a particular event (upon occurrence of predefined condition / event);

a plurality of processing modules (knowledge source processors KSPs) distributed over the data processing system (fig. 4) each including code (knowledge source / event driven application) that provides processed data (output) [col. 6, lines 23-34];

a task module (blackboard control unit BCU 32, 106), selectively communicating (via communication module 38) with each of the plurality of event modules and the plurality of distributed processing modules (fig.s 3, 4), the task module including code for selecting and instantiating a plurality of instructions (initiate/sprawn a knowledge source process) that corresponds to the event data signal (trigger pattern is matched) and for executing the instructions (run processing) [col. 6, lines 23-34; col. 7, lines 5-30; col. 14, line 13 - col. 15, line 24].

Skillman further teaches dynamic information which includes statuses (execution is completed) of the distributed processing modules (KSPs), modification to the instructions (next instruction/task determined by event-pattern matching) and the processed data (output of KSP's processing); during execution of the instructions the task module provides and incorporates the dynamic information for real-time consideration thereof (processing output from a preceding KSP is transferred to database 34 of BCU which is then dispatched to the next KSP by scheduler 42); upon completion of the currently executing instruction (when a KSP completes its processing), the task module evaluates the incorporated dynamic information (trigger module of BCU determines if the output sent to database 34 matches a trigger definition) and selectively executes, based upon the incorporated dynamic information, the next instructions (if a match is found, scheduler

sends a trigger message to start execution of the next KSP). See col. 5, lines 16-29; col. 7, lines 5-30; col. 15, lines 16-44; col. 18, lines 11-53.

In other words, Skillman controls the flow of an overall processing sequence by dispatching a trigger message and required data to the next KSP for processing. A Skillman's trigger message is the instruction(s) to the next KSP based on the processing output of the previous KSP in the sequence. Although Skillman does not call such instructions scripts, it would have been an obvious to do so. Skillman does not explicitly teach that the instructions/script proceed from a first one to a second one of the distributed processing modules for processing a next instruction of the overall processing.

Fischer teaches distributed data processing, wherein instructions/script (traveling program) proceed from a first one to a second one of distributed processing modules (transmit itself to the next destination) for processing a next instruction in the sequence of the overall processing (to collect, edit and approve data). See col. 2, line 62 - col. 3, line 11. Execution of the next instruction is based on / incorporates the dynamic information (status 112, decision of next recipient) and processed data from previously processed instructions (data in PCB, VCB which are filled in by each processing stop and passed for subsequent processing). See col. 9, line 67 - col. 10, line 16; col. 10, line 40 - col. 12, line 36.

Given the teaching of Fischer, it would have been obvious for the instructions/script of Skillman to proceed from a first one to a second one of the distributed processing modules for processing a next instruction in the sequence of the overall processing.

The motivations to combine the teachings of Skillman and Fischer includes the following. Skillman teaches concurrent parallel execution of KSPs (col. 14, lines 13-53), which, to one of ordinary skill in the art, would require a mechanism to generate multiple instances of required data / processing parameters to be dispatched to each KSP. Skillman does not provide such a mechanism. Fischer on the other hand provides a mechanism to generate multiple instances of required data / processing parameters to be dispatched to each distributed processing modules (col. 26, line 53 - col. 27, line 13). Therefore, one of ordinary skill in the art would have been motivated to use the mechanism of Fischer to

generate multiple instances of required data / processing parameters so that they can be dispatched to each concurrent parallel distributed processing modules for processing.

As to claim 2, Skillman teaches the task module executes two or more of the plurality of scripts substantially simultaneously (parallel processing, col. 3, lines 11-32).

As to claim 3, Skillman teaches converter module (trigger module 46), in communication with the task module, including code that maps the event data signal to instructions/scripts upon reception of the event data signal by the task module [col. 6, lines 23-34].

As to claim 4, Skillman teaches the plurality of distributed processing modules (KSPs) provide event data signals (event), representative of particular events, to the task module. [col. 18, lines 42-53].

As to claims 5-7, Skillman teaches status monitoring module (trigger module, database module), in communication with the task module (BCU kernel), including code (global scheduler instructions in Table 1) that provides the status information to the task module including operating conditions of (start successful); in direct communication with the plurality of distributed processing modules (fig. 3); the status monitoring module stores data associated with the instance (output) of the selected instruction/script in an associated memory (database 36). [col. 13, line 50-54].

As to claims 8-9, Skillman teaches load balancing module (scheduler module), in communication with the task module (BCU kernel), including code that dynamically selects available ones of the plurality of distributed processing modules to perform processing (based on computational availability); in direct communication with the plurality of distributed processing modules (fig. 3). [col. 4, lines 3-8; col. 15, line 64 - col. 16, line 18].

As to claims 10-12, Skillman teaches bidirectionally and substantially simultaneously transmitting data between (parallel processing), resource management module (trigger module and scheduler module) for monitoring event data signal (trigger module) and for converting functionality (trigger message) in response to dynamic information regarding and available distributed processing modules to maximize (trigger least loaded KSP). [col. 6, lines 23-34; col. 7, lines 5-30; col. 14, line 13 - col. 15, line 24].

As to claims 13-19, Skillman teaches initiator modules / communication interfaces (communication module 38), regardless of native applications (KS robot, KS vision), and protocols / communication interfaces (application interfaces, KSOSs) between various modules of the system [col. 5, line 56 - col. 6, line 34].

As to claim 20, Fischer teaches instructions/scripts (traveling program including its data structure) is preprogrammed to iteratively update its contents (loop to examine all FCB) [col. 9, line 67 - col. 10, line 16; col. 18, line 14 - col. 20, line 23]. Note discussion of claim 1 for motivation to combine.

As to claims 21-23, Skillman teaches storage module / persistent memory (database 34, 36).

As to claims 24-26, Skillman teaches script/instruction building module (trigger definitions defined in file TRIGGER.DEFS,), standard language interface ('C' programming language), GUI (display interface 148) [col. 12, lines 23-42].

As to claim 27, Skillman teaches dynamically updates and modifies (change KS in a dynamic fashion to meet requirements) scripts/instructions (KS) [it is noted that a general processing task, ie, scripts/instructions, of Skillman is implemented through knowledge sources and thus dynamic changes to the general processing task, ie, scripts/instructions, is represented by dynamic changes to the knowledge sources.]

As to claims 28-30, Skillman teaches protocols (inherent to communication interfaces 38), responder module (KSOS 112) to transmit response data from execution (pose output) [discussion of claim 1] and to convert format (translate between data formats) [col. 17, lines 53-62].

As to claims 31-32, Skillman teaches an administrative module (communication module 38, database module 34) that receives and presents data, and plurality of application peripherals (robot computer 134, vision computer 136) in communication with an associated one of the plurality of distributed processing modules / event modules (KSP 110b, KSP 110c) [col. 8, line 42 - col. 9, line 6].

As to claim 33, note discussion of claim 1, Skillman as modified further teaches resource management module (trigger module 46 and scheduler module 42)

communicating with (fig.s 3, 4), for monitoring event data signals (output, event), for converting data processing functionality (dispatch/send another trigger signal) in response to dynamic information (trigger pattern match and completion status) regarding the monitored event data signals (output, event) and the number of available distributed processing modules (based on computational capability and availability at the time of selection) to maximize number (run KSPs in parallel) of the distributed processing modules processing the event data signals [col. 4, lines 4-8; col. 6, lines 23-34; col. 7, lines 5-30; col. 14, line 13 - col. 15, line 24].

As to claim 34, note discussion of claim 1, Skillman teaches generating at least one event data signal (output, event) at one or more peripheral modules (robot computer 134, vision computer 136) and mapping the at least one event data signal to a selected script (portion of overall processing provided by KS) chosen from one or more scripts (KSs), each the one or more scripts having one or more instructions (processing capability) [col. 4, lines 4-8; col. 6, lines 23-34; col. 7, lines 5-30; col. 8, line 42 - col. 9, line 6; col. 14, line 13 - col. 15, line 24]; col. 19, lines 42-53.

As to claims 35-37, Skillman teaches communication interface (communication module 38, KSOS 110b, 110c), dynamically managing (scheduling, triggering) operating functions (KS) of the one or more peripheral modules (devices), response data signals as a result of the execution of selected instructions (previous processing output), transmitting the response data signals from the task module to (trigger message, local database/scheduler functions, table 2) selected ones of the one or more peripheral modules (KSPs) [col. 4, lines 4-8; col. 8, line 42 - col. 9, line 6; col. 13, lines 11-49; col. 14, line 13 - col. 15, line 24; col. 19, lines 42-53].

As to claims 38-40, refer to claims 32, 21 and 23, respectively, for discussions.

As to claims 41-43, 45, Skillman teaches interface/communication between the task module and selected ones of the one or more peripheral modules (communication module 38, KSOS 110b, 110c), wherein a communication protocol would have been inherent for each KSP; interfacing with a plurality of the one or more peripheral modules substantially simultaneously (fig. 3 and 4); preceding instructions/processing to available processing

modules (based on computational capability and availability at the time of selection). [col. 4, lines 4-8; col. 8, line 42 - col. 9, line 6; col. 13, lines 11-49; col. 14, line 13 - col. 15, line 24; col. 19, lines 42-53]. Note discussion of claim 1 with respect to Fischer for preceding a script / instructions / portion of overall processing task to processing module(s).

As to claims 44 and 46, refer to claims 1 and 31, respectively, for discussions.

As to claim 45, Skillman as modified teaches the execution of the one or more instructions dynamically incorporates data gathered in previously executed instructions (Skillman, output from one KSP triggers is transferred to another KSP for processing, col. 7, lines 5-18) (Fischer, traveling program transmit itself and collected/attached data to next destination for processing, col. 9, line 67 - col. 10, line 17).

As to claim 60, note discussion of claim 1 and the equivalence of event data / event data signal. Skillman further teaches response profile (posted to global database) including results generated (processing output) and transmitting (send with trigger message) the response profile to the requesting event modules (next KSP in overall processing sequence) [col. 7, lines 5-30; col. 15, lines 16-44; col. 18, lines 11-53].

As to claim 61, Skillman teaches event data (predefined event, col. 18, lines 42-53).

As to claim 63, note discussion of claim 1. Skillman teaches first and second events because each of the KSPs is a source of event generation.

5.   Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Skillman et al and Fischer as applied to claim 60 and further in view of Waclawsky (U S Pat. 5,493,689).

As to claim 62, Waclawsky teaches tracing execution of instructions (trace, col. 1, lines 43-67). Continuing execution from a last traced instruction after failure modules from a last traced instruction is met by the well known roll-back protocol of transactional processing. Given the teaching of Waclawsky, it would have been obvious to include tracing and continuing steps into Skillman as modified. The motivation to combine the teachings includes the following. Skillman teaches select next processing module for processing based on load conditions [col. 15, lines 64-67], which, to one of ordinary skill

in the art, would require a mechanism to collect and analyze load data from processing modules. Skillman does not provide such a mechanism. Waclawsky on the other hand, provides a mechanism for collecting and analyzing load data from processing modules (col. 1, line 43 - col. 2, line 62). Therefore, one of ordinary skill in the art would have been motivated to use the mechanism of Waclawsky to collect and analyze load data so that selection of next KSP can be made based on load conditions.

6.   Applicant's arguments filed 10/10/2002 have been fully considered but they are not persuasive.

Applicant argued in substance that (1) Skillman does not teach the present invention because Skillman describes a system for employing the KSPs to carry out specific tasks in accordance with a predefined sequence of sequential processing and the patterns do not influence the sequence of processing. (Page 8, last paragraph - page 10, 2nd paragraph), (2) Fisher teaches a data structure and mechanism for digital signature processing and thus is not properly combined with Skillman (page 10, 3rd paragraph - page 13, 5th paragraph).

The examiner respectfully disagrees. As to (1), each of the KSPs in Skillman carries out a predefined/specific task, but the invocation of a specific KSP is dynamically determined, based on the status (availability), output of previous KSP (output data) and outcome of the trigger-pattern matching. See col. 5, lines 16-29; col. 6, lines 23-34; col. 7, lines 5-18. It is the outcome of the trigger-pattern matching that determines the next KSP to continue the sequence of processing, ie, modifies the flow control of the overall instruction processing. Specific examples of different trigger-patterns are given in col. 15, such as trigger definitions, which clearly lead to different subsequent instruction flows. It is noted that in Skillman the system modules which facilitate the decision of overall instruction processing, such as scheduler module, database module, trigger module, and trigger definitions are predefined, but the outcome of the decision(s) of the overall instruction processing in terms of flow control dynamically changes based on the status of KSPs, output data of previous KSP processing and trigger definitions which in

combination determines outcome of the trigger-pattern matching. Further, as disclosed, applicant's modification refers to changing the flow/steps of instruction processing. See application as filed, paragraph bridging pages 23 and 24. Regarding applicant's argument that Skillman provides sequential processing, first, whether the processing is sequential or parallel is not recited nor precluded by the claim language; second, Skillman teaches parallel processing (see for example the passage of Skillman cited by applicant on page 9).

As to (2), applicant's script as claimed does not specify its nature/application, thus does not preclude the script being a digital signature processing application/program. Regarding the argument of combination, applicant is in fact arguing that the secondary reference cannot be bodily incorporated into the primary reference. The test for obviousness is not whether the features of one reference may be bodily incorporated into the other reference to produce the claimed subject matter but simply what the references make obvious to one of ordinary skill in the art. In re Bozek, 163 USPQ 545 (CCPA 1969); In re Richman, 165 USPQ 509 (CCPA 1970); In re Beckum, 169 USPQ 47 (CCPA 1971); In re Sneed, 710 F.2d 1544, 218 USPQ 385. In this case, Fisher teaches that a processing script / program proceeds/travels from processing modules to processing modules to be executed. It is this teaching, rather than the implementation nor the environment of this teaching, that is applied to Skillman.
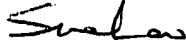

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.

In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Lao whose telephone number is (703) 305-9657. A voice mail service is also available at this number. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7238 for After Final communications, (703) 746-7239 for Official communications and (703) 746-7240 for Non-Official/Draft communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9600.

Sue Lao

December 20, 2002